~~Oroville Facilities Relicensing~~
~~Environmental Work Group~~
~~Draft Study Plan~~

SP-T3/T5~~.~~ Riparian Resources, Wetlands, and ~~associated~~ ~~floodplains~~Associated Floodplains

~~Introduction~~

~~December 11, 2001~~February 28, 2002

1.0 Introduction/Background

In California, riparian ecosystems refer to those plant communities adjacent to and influenced by the surface and subsurface hydrologic regimes of aquatic systems. They support vegetation distinct from the upland habitats and are characterized by a mixture of plant species. Riparian systems provide a number of important functions to both the aquatic and terrestrial ecosystems associated with them. These include stream bank stabilization, flow moderation and flood control, sediment control, organic matter necessary to support aquatic communities, water quality improvement by filtration, temperature moderation by shading, stream structural diversity (large-woody debris), and wildlife habitat. The biological productivity of a stream is directly related to the health and proper functioning of the riparian system.

Wetlands are areas that are covered periodically or permanently with somewhat shallow water and support vegetation adapted to saturated soils. They include low-lying areas adjacent to lakes, streams, or channels that will periodically flood from both rainfall events and high water levels in the main water body. These include both natural and constructed wetlands such as marshes, lagoons, and the brood ponds around the Thermalito Afterbay. Isolated wetlands include ponds, impoundments created by dredger tailings, and vernal pools. Vernal pools occur in low-lying areas that are usually underlain by a substrate that limits drainage. These are filled by a combination of rainfall, overland runoff, and subsurface flows. These pools may remain inundated for a week to several months before they dry down. These types of wetlands tend to have a high number of native plant species and associated wildlife and in California provide critical habitat for a number of special status plant and animal species.

Riparian and wetland habitats are important vegetation communities for wildlife. The diversity and density of species associated with these ecosystems is disproportionately high in comparison to other plant communities. The influence of riparian and wetland ecosystems on wildlife is not limited to animal species that are restricted to the riparian or wetland zone. Population densities of species in adjacent upland habitats are directly related to the presence and health of the riparian or wetland areas.

Historically, these systems were flanked by extensive floodplains that supported riparian forests and associated wetlands. Extensive modification of these systems from land-use practices, levees, and flood control functions of dams has altered and decreased functioning floodplains, and riparian and wetland systems in California.

~~Objectives~~

2.0 Study Objective

The objectives of this study are to: 1) assess the effects of project-water operations on wetland and riparian habitats in the downstream reach of the Feather River, within the Project boundary below Oroville Dam, and around the perimeter of Lake Oroville and its tributaries within the project boundary ~~and~~, 2) assess the effects of project operations on isolated wetland habitats within the project boundary, and 3) provide information to assist in developing potential protection, mitigation, and enhancement measures.

~~**Relationship to Study/Need for Study**~~

3.0 Relationship to Relicensing /Need for the Study

The results of this study will be used to provide 1) a description of the existing conditions for wetland and riparian vegetation~~:~~ and 2) an assessment of potential project-related effects to be included in the Preliminary Draft Environmental Assessment. These elements are required under CEQA and NEPA. This information is also required for license review under the Federal Power Act.

4.0 Study Area

The study area will include all areas within the Oroville Project boundary and downstream Feather River floodplain to the confluence with the Sacramento River. Study plans approved by the Environmental Work Group define the limits of the study area. If initial study results indicate that the study area should be expanded or contracted, the Environmental Work Group will discuss the basis for change and revise the study area as appropriate.

~~**Methods**~~

5.0 General Approach

Detailed Methodology and Analysis Procedures

The following methods will be used to investigate and evaluate the potential project effects on riparian and wetland vegetation associated with the project. These investigations will focus on three specific areas of concern associated with the project water operations, as well as, isolated wetlands that may be affected by water operations and other factors. These investigations are described below: including 1) an evaluation of riparian conditions along the ~~lower~~~~Lower~~ Feather River below Oroville Dam; 2) wetland communities associated with the water operations between Oroville Dam and the Afterbay outlet; 3) shoreline vegetation associated with the shoreline of Lake Oroville and tributaries within the project boundary, and 4) isolated wetlands habitats throughout the study area. If initial study results indicate that the methods and tasks should be modified, the Environmental Work Group will discuss the basis for change and revise the study plans as appropriate.

Task ~~**1: Evaluation**~~1—Evaluation of riparian conditions ~~in~~ along the ~~Lower~~ Feather River below Oroville Dam

The ~~lower~~~~Lower~~ Feather River below Oroville Dam extends approximately 67 miles from the Main Dam to the Sacramento River, and is joined by the Yuba and Bear Rivers. Riparian communities have been greatly reduced from ~~the lower~~~~Lower~~ this reach of the Feather River due to levee construction and agricultural

development. Levees separate the river from the riparian habitats that occur within the historic floodplain. This task will~~e following study plan would~~ address ~~concerns for~~ the project water releases on the remaining riparian communities along the ~~lower~~~~Lower~~ Feather River below Oroville Dam.

Fremont cottonwood, black willow, shining willow, and sandbar willow are the primary riparian succession species on gravels, sandbars, and riverbanks along the ~~lower~~~~Lower~~ Feather River below Oroville Dam.~~, on gravels, sand bars, and riverbanks.~~ A preliminary review of the existing riparian conditions along the Feather River indicate that mature stands of riparian vegetation are common along some reaches of the river, however, riparian vegetation is absent in other reaches. Project releases could impair recruitment for cottonwood and willow by altering the hydrology for cobble, gravel, and sandbar recruitment sites within the leveed floodplain of the ~~Lower~~ Feather River. Implementation of the following sub tasks would evaluate riparian recruitment along the ~~Lower~~ Feather River below Oroville Dam.

Subtask ~~Task~~ 1A ~~Lower~~ Feather River below Oroville Dam Data Review

~~lower~~~~Collection and review of site-specific data from existing sources will allow for an understanding of the existing riparian and wetland conditions and an evaluation of the effects of project releases on riparian and wetland communities along the Lower~~ Feather River. ~~The objective of this sub task is to identify and understand the local factors affecting the distribution, abundance and composition of riparian vegetation within the study area.~~ A literature review will be conducted to identify specific criteria for successful recruitment at these sites along the Feather River, including grain-size distribution on substrate, ~~including~~ the timing of seedling establishment, rate of seedling establishment, and required hydrologic conditions for seedling establishment. ~~Implementation of the following tasks would evaluate riparian recruitment along the lower FeatherRiver.~~

~~**Task 1.1 Lower Feather River Data Review**~~

~~Collection and review of site-specific data from existing sources will allow for an understanding of the existing riparian and wetland conditions and an evaluation of the effects of project releases on riparian and wetland communities along the lower Feather River.~~ The following data ~~would~~ will be reviewed from existing sources to describe and evaluate riparian conditions along the Feather River: ~~historic~~ air photos, riparian habitat mapping and occurrence data (SP-T4), historical hydrologic data (SP-E1.6~~O2~~), channel typing by reach ~~(Rosgen Level 2),(to what level?),~~(Rosgen Level 2) and channel transects at key locations (SP-G2). Background information will also be collected on restoration and planning efforts along the Feather River, by contacting local planning departments and reclamation districts, Army Corps of Engineers, and Flood Management Division of DWR.

Subtask ~~Task **1.2** Lower~~1B ~~Lower~~ Feather River below Oroville Dam Onsite Data Collection

Field investigations will be conducted to determine the status of riparian recruitment by identifying areas with successful or impaired riparian cottonwood and willow seedling establishment.~~and collect data that will allow for evaluation of project releases at sites where impaired (and successful) recruitment is identified.~~

Channel typing and air photo review will be used to identify river reaches for field investigations. These investigations will sample each reach type~~,~~ and focus on areas of potential impaired or successful ~~(and successful)~~ recruitment. Sampling will also include reaches above and below the junction of the Bear and Yuba rivers. Indicators of impaired recruitment include stressed or dead vegetation, absence of seedlings or sap~~p~~lings, colonization of riparian zones by upland species, and altered riparian cover. Indicators of successful recruitment include evidence of vegetation establishment at suitable recruitment sites. ~~…..~~ ~~Indicators of impaired recruitment~~These sites will be mapped and~~,~~ photo-documented. ~~, and d~~Data will be collected on the nature and extent of the impaired recruitment, as well as, substrate~~s~~ types~~,~~ and hydrologic indicators. ~~field indicators of hydrology.~~

Representative river cross-section data will be collected from sites that are identified with impaired and successful recruitment. This will allow for further evaluation of potential adverse effects due to hydrologic alteration. At these sites, channel cross sections will be used to establish the stage-discharge relationship between recruitment sites and instream flows.

Task 1.3 Project Subtask 1C—Project Evaluation of Riparian Conditions

Conditions

River deposits of sand, gravel, and cobbles provide recruitment sites for Fremont cottonwood, black willow, shining willow, and sandbar willow. A literature review will be conducted to identify specific criteria for successful recruitment at these sites along the Feather River, including grain-size distribution on substrate, including the timing of seeding establishment, rate of seeding establishment, and required hydrologic conditions for seeding establishment.

Project releases and potential alternatives for re-operation will be evaluated using the specific criteria for the natural establishment of riparian species and the stage-discharge relationship for each recruitment site. This evaluation will include an analysis of the frequency and duration of flooding on River deposits of sand, gravel, and cobbles provide recruitment sites for Fremont cottonwood, black willow, shining willow, and sandbar willow. Project releases and potential alternatives for re-operation will be evaluated using the specific criteria for the natural establishment of riparian species and the stage-discharge relationship for each recruitment site (SP-E2). (include reference to appropriate E&O modeling study plan) This analysis will be based on a representative range of discharge year types (high, medium, and low flows) and may include wet, above normal, below normal, and critical dry years. Three water year types willmay be used to review project releases at these sites. Water year types willmay include wet, normalbelow normal, and critical dry years or high, medium and low flows.
the recruitment of riparian vegetation.

Where this evaluation identifies adverse project effects on riparian recruitment, measures will be recommended to enhance, promote, or restore riparian habitat. Recommendations will be evaluated for conflicts with local and regional planning efforts. These measures will be developed pursuant to 18CFR4.51(f)(3)(v),18CFR4.51(f)(3?)(iv?), including 1) a description of the measure; 2) implementation schedule; 3) cost estimate and funding sources; 4) construction drawings (if needed); and 5) appropriate maps.

Task 2: Evaluate2—Evaluate effects of project operations on wetland communities associated with the water operations between Oroville Dam and the Afterbay outletwetland and riparian habitats in the project area below the dam

Project facilities below the dam that support wetland and riparian habitats include the Thermalito Forebay, Thermalito Afterbay, and the Oroville Wildlife Area (OWA) (collectively, the Thermalito Complex). These areas provide high-value nesting habitat for waterfowl along the Pacific Flyway. Project operations can influence the quality and quantity of nesting habitat and nesting success. In the following tasks, data will be collected and evaluated to understand the relationship between project releases in the Thermalito Complex, with vegetation and local topography. The following sub-tasks will investigate the current and alternative water operations in the Thermalito Complex and potential effects on wetland habitat for nesting waterfowl.

Subtask ~~Task **2.1 Data**~~2A—Data Collection

The abundance and distribution of wetland vegetation within the Thermalito Complex is based on water surface elevations that fluctuate with project operations. Spatial data on vegetation composition (SP-T4) and; soil and topography (SP-G1) will be compiled and reviewed with the use of GIS to identify the potential correlation between vegetation and physical setting. This information will be compared with historic hydrological operations data (SP-E1.2) to determine how current and future operations influence the abundance and distribution of vegetation communities. This review will analyze frequency, duration, and seasonal patterns of inundation of the Thermalito Complex.
~~Water surface elevations are controlled by water releases from the project and local topography (natural contours as well as berms, dikes, and checks).~~Data will be collected to understand the relationship between project releases in Thermalito Complex, with vegetation and local topography. ~~((Gail – check if this has happened:elaborate on how this understanding will happen))~~ ~~Historical and alternative operations data will be obtained from SP-EO2.~~Study #SP-EO2. ~~Vegetation information will be obtained from SP-T4. Topographic information will be obtained from project maps and SP-G1. This data will be compiled in a GIS database.~~Study #~~SP-T4.~~

Subtask ~~Task **2.2 Development**~~2B—Development of Hydrologic Criteria

Specific criteria for water level elevations to maintain vegetation conditions surrounding brood ponds within the Thermalito Complex ~~has~~ have been provided by the California Waterfowl Association. ~~to maintain vegetation conditions surrounding and brood pond water levels.~~ These criteria include a range of water levels that reach 133 feet on a regular interval during the waterfowl-nesting season (between March 15 and July 15). These criteria will be field checked by measuring the elevation profiles of water control features including flap gates and natural topography. If needed the stage-discharge relationship will be measured at selected locations in the Thermalito Complex.

Subtask ~~Task **2.3 Project**~~2C—Project Evaluation

The effects of current and alternative water operations will be ~~quantified~~ evaluated based on water-level criteria by integrating historic data and model output with a GIS overlay of vegetation and topographic contours. ~~This evaluation will determine the optimal conditions for maintenance of wetland vegetation and conditions for nesting waterfowl~~ This evaluation will be based on the reservoir stage-habitat relationship as observed in the field. Alternative operations and the corresponding qualitative affects on the distribution and composition of plant communities will be based on any proposed changes in the water operations at the Thermalito Complex. GIS will be used to quantify the projected changes in the acreage of wetland vegetation and conditions for nesting waterfowl due to altered operations.
~~including timing, inundation mapping, flood frequency, and duration of flooding~~.

Task ~~3: Evaluate~~3—Evaluate the project operations on ~~shoreline~~ vegetation associated with the shoreline of Lake Oroville and tributaries within the project boundary ~~riparian and wetland shoreline vegetation at Lake~~ **~~Oroville~~**

The objective of this task is to evaluate and understand the effects of project water operations on riparian and wetland vegetation at the shoreline of Lake Oroville. This task will identify the current shoreline vegetation; distinguish the factors and mechanisms that influence existing distribution and occurrence of shoreline vegetation; evaluate current and alternative water operations that may affect wetland and riparian shoreline vegetation; and identify areas suitable for potential establishment of riparian and wetland vegetation at the reservoir ~~shoreline. The following tasks will collect and~~ shoreline.
~~compile data on substrate and vegetation into GIS to allow for riparian and wetland community correlation analysis.~~

~~Task 3.1 Identify~~Subtask ~~Task~~3A—Identify and compile onsite resources and background data~~.~~

DWR will review existing sources of information and collect data from other Oroville relicensing studies to 1) provide a description of the existing wetland and riparian shoreline vegetation~~;~~ and 2) allow for evaluation of project operations. This task will ~~utilize~~ compile the following data from other studies: 1) vegetation mapping of the reservoir (SP-T4); 2) hydrologic data on reservoir (SP-E1.2)~~E~~O~~2); and SP-E3);~~ quantitative data on topography, soil types, and geomorphology (SP-G2). ~~Substrate and vegetation mapping information will be compiled into GIS, allowing for riparian and wetland community correlation analysis (Gail/Jim: describe what this analysis entails—stage/habitat relationship?). Hydrological data will be assessed to determine frequency and periodicity of inundation.~~ Existing literature will be reviewed to identify specific establishment criteria for dominant native plant species occurring at the shoreline.

Subtask ~~Task 3.2 Assess onsite field conditions.~~

3B—Assess Onsite Field Conditions

Riparian and wetland shoreline communities identified in Subtask ~~Task~~ 3A~~3.1~~ will be assessed in the field at low water conditions to 1) identify the species composition; 2) observe distribution patterns of the existing vegetation at the shoreline; 3) ~~analyze~~ describe community structure with respect to site history (such as relic upland species in post-dam wetland habitats); 4) assess plant recruitment and establishment; 5) collect data on elevation, slope, local hydrology and topography; and 6) identify wetland functions and values using the US ACOE Wetland Evaluation Technique. ~~procedures.~~

Subtask ~~Task~~ ~~3.3 Evaluate current and alternative reservoir operations~~

3C—Evaluate Current and Alternative Reservoir Operations

Current and future project operations will be evaluated by comparing hydrologic modeling and vegetation mapping with field evaluations and species-specific establishment criteria.

Using data from Subtasks ~~Tasks~~ 3A.~~1~~ and 3B.~~2~~, the reservoir evaluation will 1) determine the effects of water operations on the distribution of wetland and riparian shoreline vegetation; 2) identify the constraints for recruitment and establishment of vegetation at the reservoir shoreline; 3) identify areas suitable for potential establishment of riparian and wetland vegetation at the reservoir shoreline and critical conditions needed for vegetation establishment; and 4) describe the potential alteration of wetland functions due to potential development of shoreline vegetation.

Task ~~**4: Evaluate**~~4—Evaluate the effect of project operations on isolated wetlands throughout the study area~~isolated wetland habitats within the project area~~

Isolated wetland features occur throughout the project lands. These include ponds, impoundments created by dredger tailings, and vernal pools. These wetlands can be affected by maintenance associated with recreation and generation facilities.

~~Task 4.1 Obtain and collect data on isolated wetlands~~

Subtask ~~Task~~4A—Obtain and Collect Data on Isolated Wetlands

The following data will be obtained from other Oroville Relicensing studies: 1) mapping of isolated wetlands and species composition (SP-T4); 2) groundwater hydrology (SP-E1.2 and SP-W6);~~O~~2); and 3) soil type and topography (SP-G2). This information will be integrated into a GIS, allowing for watershed delineation for each isolated wetland. When isolated wetlands occur within 500 feet of each other, one watershed boundary will be determined for the unit. Information on the historical threats to isolated wetlands will be collected from the California Natural Diversity Data Base.

Subtask ~~Task 4.2 Field assessment~~

4B—Field Assessment

Wetland functions associated with isolated wetlands will be assessed in the field. Field inspections will be conducted when soil conditions are moist, to allow for detection of trampling, off-road vehicle use, and other types of effects on the watershed of each isolated wetland. Herbicide use and adjacent land uses will be noted during field inspection.

Subtask ~~Task 4.3 Evaluation of isolated wetlands~~

4C—Evaluation of Isolated Wetlands

A qualitative assessment of isolated wetlands will be prepared, including an assessment of wetland functions and values. This assessment will include the current state of isolated wetlands, historical and current disturbances, and proposed guidelines for future development of recreational facilities at or near wetland areas. This assessment will focus on areas of significant disturbance.

Task 5 – Preliminary Report

A preliminary report will be prepared summarizing the first-year field studies.

Task 6 – Final Report

A final report will be prepared summarizing project-related impacts on riparian and wetland vegetation within the project area and along the Feather River downstream of Oroville Dam.

~~**Results/Products**~~

6.0 Results and Products/Deliverables

Results

This investigation will provide qualitative and quantitative information ~~on~~ to describe the relationship and the effects of project water operations on wetland and riparian habitats ~~due to project water operations at Lake Oroville, in the Thermalito Complex, and in the lower~~Lower Feather River. The results of this investigation will be summarized into a report on wetland and riparian vegetation with appropriate~~GIS~~ maps for use with other studies on vegetation and wildlife. The report will include suitable information for development of a Biological Assessment and the CEQA/NEPA document. ~~(consider more proactive approach here)~~Identification of project impacts in the report can also be used by the work group as a basis for discussion of protection, mitigation, or enhancement measures.

~~**Study Plan Coordination/Implementation**~~

7.0 Coordination and Implementation Strategy

Coordination with Other Resource Areas/Studies

Implementation of this study plan will require coordination with other Oroville relicensing studies, as follows: ~~historic~~ air photos, riparian habitat mapping and occurrence data ~~(SP-T4);~~(~~Study #~~SP-T4); channel typing of the ~~lower~~ Feather River downstream of Oroville Dam~~,~~ and channel transects at key locations ~~(SP-G1 and SP-G2);~~(SP-~~Study #~~G1 and SP-~~Study #~~G2); historical and alternative operations data will be obtained (SP-E1.2, SP-E1.6, and SP-E2) ~~(SP-EO2);~~(SP-~~Study #~~E~~O~~2); quantitative data on topography, soil types, and geomorphology ~~(SP-G2);~~(SP-~~Study #~~G2); and description of recreation use and recreation facility maintenance ~~(SP-RS03 and SP-RS05).~~(SP-~~Study #~~R~~S0~~3 and SP-~~Study #~~R~~S0~~5). This study will also require coordination with the GIS program. Results from this study will be used for the evaluation of wildlife habitat in ~~SP-T1 SP-T2, and SP-T10.~~ SP-~~Study #~~T1, SP-~~Study #~~T2, and SP-~~Study #~~T10.

~~**References**~~

~~**(To be completed)**~~

~~**Issue Statements**~~

Issues, Concerns, Comments Tracking, and/or Regulatory Compliance

This study will analyze project effects on riparian and wetland vegetation and communities within the project area and along the Feather River downstream of Oroville Dam.

Direct

- TE9 - Water releases from Oroville Dam and downstream impacts (vegetation and properties)
- TE23 - Minimize adverse impacts to riparian resources through appropriate mitigation
- TE24 - Facilitate hydroelectric development that provides protection of riparian resources
- TE39 - Manage flows and/or reservoir storage to maintain or enhance riparian plant communties and habitat for all life stages of fish. Cooperate with local, State, and other Federal water management agencies. Protect riparian areas while providing developed facilities
- TE52 - Evaluate quality of vernal pools in the project boundary and project operations on health/quality of pools
- TE61 - Project effects on downstream riparian habitat and the reservoir shoreline including on-going effects of reservoir operations and recreational uses; effective stabilization, restoration, and enhancement measures

Indirect

- TE6 – Revegetate disturbed areas within floodplains to stabilize soil, benefit fish and wildlife, and restore the natural flood control qualities
- TE29 – Interaction of lake with wildlife species (birds, amphibians, etc.) – how is lake used
- TE34 – Favor riparian dependent resources and limit disturbance in all riparian areas including riparian and aquatic ecosystems, wetlands, stream banks, and floodplains
- TE35 – Favor riparian resources over other resources, except cultural resources, in cases of conflict
- TE37 – Assure adequate protection of riparian area for wildlife and fish resources

8.0 Study Schedule

Tasks 1A, 2A, 3A, and 4A will be completed by September 2002. Tasks 1B,2B, 3B, and 4B will begin in July 2002 and will be completed in August 2003. A preliminary report (Task 5) will be completed in January 2003. The evaluation of riparian and wetland resources (Tasks 1C, 2C, 3C, and 4C) will be completed September 2003. A final report (Task 6) will be completed in December 2004.

9.0 References

Adamus, P.R., E.J. Clairain, Jr., R.D. Smith, and R.E. Young. 1987. Wetland Evaluation Technique – Volume II. US Army Engineers Waterways Experiment Station. Vicksburg, MS. 206P. and app.

Anthrop, Donald. San Jose State University. Letter dated October 29, 2001 to Curtis Creel, Department of Water Resources, regarding “Effects of the Operation of the Afterbay on Waterfowl Nesting at Thermalito”.

- T3 Effects of existing and future project operations on floodplains and project water fluctuation zones, including soil stability, wildlife habitat and natural flood control functions, revegetation of native plant communities, and restoration opportunities (e.g. red willow planting).

- T5 Project effects on riparian resources and protection and management of riparian habitat and wetlands (including vernal pools and brood ponds).

Issues Addressed

- TE6 Re-vegetate disturbed areas within floodplains to stabilize soil, benefit fish and wildlife, and restore the natural flood control qualities

- TE9 Water releases from Oroville Dam and downstream impacts (vegetation and properties)

- TE23 Minimize adverse impacts to riparian resources through appropriate mitigation

- TE24 Facilitate hydroelectric development that provides protection of riparian resources

- TE29 Interaction of lake with wildlife species (birds, amphibians, etc.) - how is lake used

- TE34 Favor riparian dependent resources and limit disturbance in all riparian areas including riparian and aquatic ecosystems, wetlands, stream banks, and floodplains

- TE35 Favor riparian resources over other resources, except cultural resources, in cases of conflict

- TE37 Assure adequate protection of riparian area for Wildlife and fish resources

- TE39 Manage flows and/or reservoir storage to maintain or enhance riparian plant communities and habitat for all life stages of fish. Cooperate with local, State, and other Federal water management agencies. Protect riparian areas while providing developed facilities

- TE40 Native plant landscaping (potential sites: Feather River Fish Hatchery, State Parks Headquarters, DWR Field Office, Spillway Launch Facility - future) and restoration of native plant communities

- TE52 Evaluate quality of vernal pools in the project boundary and project operations on health/quality of pools

- TE57 Effects of reservoir surface elevation fluctuations on wildlife habitat

- TE61 Project effects on downstream riparian habitat and the reservoir shoreline including on-going effects of reservoir operations and recreational uses; effective stabilization, restoration and enhancement measures

Study Plan Implementation Schedule:

This program will task place on a concurrent schedule as follows: Tasks 1.1; 2.1; and 3.1 will be completed by June 2002. Field investigations identified in Tasks 1.2; 2.2; and 3.2 will take place between May 2002 and November 2002. A progress report on field investigations will be provided in January 2003. Evaluation of wetland and riparian conditions can take place with completion of the project operations model. Wetland and riparian evaluations are expected to take place between November 2002 and June 2003. An interim report will be provided for assessment of wildlife in August 2003 (for SP-T1, SP-T2, and SP-T10) and a final report will be prepared in December 2003.

8.0 Study Schedule

This section to be developed.

9.0 References

This section to be developed.